

Interactive comment on “Classification of tropospheric ozone profiles over Johannesburg based on MOZAIC aircraft data” by R. D. Diab et al.

Anonymous Referee #1

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General comment:

This is a well-balanced paper introducing the use of cluster analysis to evaluate tropospheric ozone profiles and it is worthwhile to have this paper published.

Specific comments:

The relative humidity instrumentation is described in the paper, but not really used as far as I can see. So maybe it could be left out.

I am not familiar with the TWINSPAN program for cluster analysis, but have been working about 20 years ago with the application of cluster analysis for the evaluation of the chemical composition of rain. We were then using another cluster analysis program called Clustan 1c. We tried then different criteria to form groupings (centroid,

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nearest neighbour etc.). We found then that the centroid method gave the best results for that problem. It would for that reason be interesting if the authors could give some information on the criteria to form groupings that TWINSpan uses.

The cluster analysis was done only on the magnitude and the altitude of the ozone concentration in the profile. Newell et al. (1999) were using ozone and water vapour to characterize layer types. Would it be possible also to include also water vapour in the cluster analysis and have the authors tried that?

Technical comments:

It would be nice if the subfigures in Fig. 2 and 3 were not numbered (a), (b), but got names used in the section and maybe also the numbers (2a etc.) used in the dendrogram (Fig. 1). This makes it easier to read the article.

In the references the name should be Nédélec and not Nedelec or Nédelec.

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